CLAIMS

1. A radio wave reception device comprising:

a radio wave reception means (1, 2) which receives a radio wave signal, converts the received radio wave signal into an electric signal, and outputs the electric signal;

an oscillation means (5) which outputs a signal having a single frequency;

a frequency conversion means (4) which synthesizes the electric signal output from said radio wave reception means (1, 2) with the signal output from said oscillation means (5), and outputs an intermediate frequency signal; and

a detection means (8) which demodulates the intermediate frequency signal output from said frequency conversion means (4),

wherein said frequency conversion means (4) synthesizes one of signals having different frequencies which are received by said radio wave reception means (1, 2) with the signal having the single frequency output from said oscillation means (5), and outputs the intermediate frequency signal whose frequency is fixed.

2. The radio wave reception device according to claim 1, wherein said oscillation means (5) outputs a signal whose frequency is either an average of frequencies of a first radio wave and a second radio wave received by said radio wave reception means (1, 2), or an average of difference between the frequencies of the first radio wave and the second radio wave.

3. A radio wave reception device comprising:

a radio wave reception means (1, 2) which can receive a first radio wave and a second radio wave having different frequencies, and outputs an electric signal of the first radio wave or the second radio wave by converting the received first or second radio wave into an electric signal;

an oscillation means (110) which outputs a signal whose frequency is either an average of the frequencies of the first radio wave and the second radio wave output

from said radio wave reception means (1, 2), or an average of difference between the frequencies of the first radio wave and the second radio wave;

a frequency conversion means (4) which synthesizes the electric signal output from said radio wave reception means (1, 2) with the signal output from said oscillation means (110), and outputs an intermediate frequency signal; and

a detection means (10) which demodulates the intermediate frequency signal output from said frequency conversion means (4).

4. The radio wave reception device according to claim 3, wherein:

said oscillation means (110) outputs the signal whose frequency is either the average of, or the average of difference between, the frequencies of the first radio wave and the second radio wave by multiplying or frequency-dividing this signal; and

said detection means (10) receives the signal output from said oscillation means (110) before being multiplied or frequency-divided, and demodulates the intermediate frequency signal in accordance with a synchronous detection method using the received signal.

5. The radio wave reception device according to claim 3, wherein:

said oscillation means (110) outputs the signal whose frequency is either the average of, or the average of difference between, the frequencies of the first radio wave and the second radio wave; and

said detection means (10) receives the signal output from said oscillation means (110) after being multiplied or frequency-divided, and demodulates the intermediate frequency signal in accordance with a synchronous detection method using the received signal.

6. A radio wave clock comprising a radio wave reception device (917), wherein said radio wave reception (917) includes:

a radio wave reception means (1, 2) which receives a radio wave signal

containing time data, converts the received radio wave signal into an electric signal, and outputs the electric signal;

an oscillation means (5) which outputs a signal having a single frequency;

a frequency conversion means (4) which synthesizes the electric signal output from said radio wave reception means (1, 2) with the signal output from said oscillation means (5), and outputs an intermediate frequency signal; and

a detection means (8) which demodulates the intermediate frequency signal output from said frequency conversion means (4),

wherein said frequency conversion means (4) synthesizes one of signals having different frequencies which are received by said radio wave reception means (1, 2) with the signal having the single frequency output from said oscillation means (5), and outputs the intermediate frequency signal whose frequency is fixed.

7. A radio wave clock comprising a radio wave reception device (920), wherein said radio wave reception (920) includes:

a radio wave reception means (1, 2) which can receive a first radio wave and a second radio wave each containing time data and having different frequencies from each other, and outputs an electric signal of the first radio wave or the second radio wave by converting the received first or second radio wave into an electric signal;

an oscillation means (110) which outputs a signal whose frequency is either an average of the frequencies of the first radio wave and the second radio wave output from said radio wave reception means (1, 2), or an average of difference between the frequencies of the first radio wave and the second radio wave;

a frequency conversion means (4) which synthesizes the electric signal output from said radio wave reception means (1, 2) with the signal output from said oscillation means (110), and outputs an intermediate frequency signal; and

a radio wave reception means (10) which demodulates the intermediate frequency signal output from said frequency conversion means (4).

8. A radio wave reception device comprising:

a radio wave reception means (1, 2) which receives a radio wave signal, converts the received radio wave signal into an electric signal, and outputs the electric signal;

an oscillation means (5) which outputs a signal having a single frequency;

a multiplying means (9) which multiplies the signal output from said oscillation means (5);

a frequency conversion means (4) which synthesizes the electric signal output from said radio wave reception means (1, 2) with the signal output from said multiplying means (9), and outputs an intermediate frequency signal; and

a detection means (8) which demodulates the intermediate frequency signal output from said frequency conversion means (4),

wherein said frequency conversion means (4) synthesizes one of signals having different frequencies which are received by said radio wave reception means (1, 2) with the signal output from said multiplying means (9), and outputs the intermediate frequency signal whose frequency is fixed.

9. The radio wave reception device according to claim 8, wherein said oscillation means (5) includes a frequency determining means (5) which determines a frequency f0 which is obtained from an equation

$(|f1 \pm fi|/p1) = \ldots = (|fn \pm fi|/pn) = f0$ (where p1, ..., pn are positive integers)

which defines a relationship between frequencies (f1, ..., fn (n is an integer equal to or greater than 2)) of a plurality of radio waves receivable by said radio wave reception means (1, 2) and the intermediate frequency fi, as the single frequency.

10. The radio wave reception device according to claim 9, further comprising a selection means (901) which selects any one integer from among the positive integers p1 to pn,

wherein said multiplying means (9) includes a frequency multiplying means

(9) which outputs the signal having the single frequency output from said oscillation means (5) by multiplying this signal by the integer selected by said selection means (901).

11. A radio wave reception device comprising:

a radio wave reception means (1, 2) which can receive a plurality of radio waves having different frequencies, and outputs an electric signal of each of the plurality of radio waves by converting each received radio wave into an electric signal;

an oscillation means (5) which outputs a signal having a frequency f0 which is obtained from an equation

$(|f1 \pm fi|/p1) = \ldots = (|fn \pm fi|/pn) = f0$ (where p1, ..., pn are positive integers)

which defines a relationship between the respective frequencies (f1, ..., fn (n is an integer equal to or greater than 2)) of the plurality of radio waves receivable by said radio wave reception means (1, 2) and an intermediate frequency fi;

a frequency conversion means (4) which synthesizes the electric signal output from said radio wave reception means (1, 2) with a harmonic component of the signal output from said oscillation means (5), and outputs the intermediate frequency signal; and

a detection means (8) which demodulates the intermediate frequency signal output from said frequency conversion means (4).

12. A radio wave clock comprising a radio wave reception device (917), wherein said radio wave reception (940) includes:

a radio wave reception means (1, 2) which receives a radio wave signal containing time data, converts the receives radio wave signal into an electric signal, and outputs this electric signal;

an oscillation means (5) which outputs a signal having a single frequency;

a multiplying means (9) which multiplies the signal output from said

oscillation means (5);

a frequency conversion means (4) which synthesizes the electric signal output from said radio wave reception means (1, 2) with the signal output from said multiplying means (9), and outputs an intermediate frequency signal; and

a detection means (8) which demodulates the intermediate frequency signal output from said frequency conversion means (4),

wherein said frequency conversion means (4) synthesizes one of signals having different frequencies which are received by said radio wave reception means (1, 2) with the signal output from said multiplying means (9), and outputs the intermediate frequency signal whose frequency is fixed.

13. A radio wave clock comprising a radio wave reception device (917b), wherein said radio wave reception (960) includes:

a radio wave reception means (1, 2) which can receive a plurality of radio waves each containing time data and having different frequencies from each other, and outputs an electric signal of each of the plurality of radio waves by converting each received radio wave into an electric signal;

an oscillation means (5) which outputs a signal having a frequency f0 which is obtained from an equation

$(|f1 \pm fi|/p1) = \ldots = (|fn \pm fi|/pn) = f0$ (where p1, ..., pn are positive integers)

which defines a relationship between the respective frequencies (f1, ..., fn (n is an integer equal to or greater than 2)) of the plurality of radio waves receivable by said radio wave reception means (1, 2) and an intermediate frequency fi;

a frequency conversion means (4) which synthesizes the electric signal output from said radio wave reception means (1, 2) with a harmonic component of the signal output from said oscillation means (5), and outputs the intermediate frequency signal; and

a detection means (8) which demodulates the intermediate frequency signal

output from said frequency conversion means (4).